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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,444	07/12/2006	Holger Timinger	DE03171US	3803
28159 7590 12/29/2008 PHILIPS MEDICAL SYSTEMS PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3003 22100 BOTHELL EVERETT HIGHWAY BOTHELL, WA 98041-3003				
EXAMINER NGUYEN, HIEN NGOC				
ART UNIT 3768		PAPER NUMBER		
MAIL DATE 12/29/2008		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/556,444

Applicant(s)

TIMINGER ET AL.

Examiner

HIEN NGUYEN

Art Unit

3768

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 14 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 11/14/2005
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tepper (US 2004/0106869) and in view of Crawford et al. (US 5,287,276).

Tepper discloses:

- a source of a location signal indicating the location of the invasive instrument; see Tepper's abstract, [0091-0117], [0213-0215], [0217], Fig. 1 and 10.
- an X-ray device and/or an ultrasound device for producing an image of at least one clearly defined body structure; see Tepper's abstract, [0091-0117], [0213-0215], [0217], Fig. 1 and 10.
- a data processing device which is coupled to the x-ray device or ultrasound device and responsive to the location signal and is designed to determine the position of the clearly defined body structure in the image; see Tepper's abstract, [0091-0117], [0169], [0213-0215], [0217], Fig. 1 and 10.

However, Tepper does not disclose generating a movement parameter. Crawford discloses generating a movement parameter (col. 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tepper's apparatus for generating a movement parameter taught by Crawford because movement parameter correspond with the motion of the organ and it describes the movement of the organ.

Regarding claim 2, Tepper discloses using ultrasound apparatus to obtain images of body cavity or organs. It would have been obvious to one of ordinary skill in the art at the time of the invention that Tepper obtained images of the diaphragm.

Regarding claim 3, Crawford discloses:

- an x-ray device producing an image of the body structure with a control irradiation field and a control dose of radiation; see Crawford col. 5-6. It would have been obvious to one of ordinary skill in the art at the time of the invention that Crawford is producing x-ray images of the body structure with a minimum size of the irradiation field and with a minimum dose of radiation because exposure to a large field of irradiation and large quantity of radiation cause harm to human body. Control irradiation field and dose of radiation are basic operations that any x-ray technician would know.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tepper's apparatus for producing x-ray images of the

body structure with a minimum size of the radiation field and with a minimum dose of radiation taught by Crawford because x-ray is another method to image body structure and x-ray machine is available in every imaging laboratory. X-ray imaging is inexpensive.

Regarding claim 4, Tepper discloses:

- an ultrasound device producing at least one sectional image that contains the clearly defined body structure; see Tepper [0007].

Regarding claim 5, Tepper discloses:

- an ultrasound device which has means for fixing it to the body of a patient, and the location signal source comprises a locating device for determining the spatial position of the ultrasound device and locating device being coupled to the data processing device; see Tepper's abstract, [0091-0117], [0213-0215], [0217], Fig. 1 and 10.

Regarding claim 6, it would have been obvious to one of ordinary skill in the art at the time of the invention that Tepper's apparatus produces images of alternating clearly defined body structures. Tepper's apparatus uses x-ray generator therefore it is not healthy for the body to expose any part of the body to radiation for too long. Ultrasound scanner can also be used alternating with x-ray to avoid long radiation exposure.

Regarding claim 8, Crawford discloses:

- data processing device design to calculate the position of an internal organ of the body with the aid of a model that is dependent on the movement parameter; see Crawford col. 5-11.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tepper's apparatus to calculate the position of an internal organ of the body with the aid of a model that is dependent on the movement parameter taught by Crawford because by knowing the position of an internal organ of the body the invasive instrument can be safely guided inside the body. Without clear image of the position of the organ inside the body the invasive instrument could cause damage to the organ while moving inside the body.

Regarding claim 9, Tepper discloses:

- a locating device for determining the spatial position of the instrument; see Tepper's abstract, [0091-0117], [0213-0215], [0217-240], Fig. 1 and 10. It would have been obvious to one of ordinary skill in the art at the time of the invention that catheter can be used with the system discloses by Tepper. See especially Tepper [0240].
- a data processing device which is couple to the locating device and to the apparatus and is designed to determine the position of the instrument relative to the vascular system; see Tepper's abstract, [0091-0117], [0213-0215], [0217-240], Fig. 1 and 10.

Tepper discloses an apparatus as in claim 1. However, he does not explicitly disclose movement parameter. Crawford discloses movement

parameter (col. 2). It would have been obvious to one of ordinary skill in the art at the time of the invention that Tepper in view of Crawford uses the apparatus for determining a movement parameter.

Regarding claim 10, Tepper discloses method steps of:

- producing an image of at least one clearly defined body structure using x-ray radiation and/or ultrasound; see Tepper's claim 48, abstract, [0091-0117], [0213-0215], [0217], Fig. 1 and 10.
- identifying the location of an invasive device in the body; see Tepper's claim 48, abstract, [0091-0117], [0213-0215], [0217], Fig. 1 and 10.
- determining the position of the clearly defined body structure in the image; see Tepper's claim 48, abstract, [0091-0117], [0169], [0213-0215], [0217], Fig. 1 and 10.

However, Tepper does not disclose generating a movement parameter. Crawford discloses generating a movement parameter. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tepper's apparatus for generating a movement parameter taught by Crawford because movement parameter correspond with the motion of the organ and it describes the movement of the organ.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tepper (US 2004/0106869), in view of Crawford et al. (US 5,287,276) and in view of Murthy et al. (US 6,101,238).

Tepper and Crawford substantially disclose all claim limitations set forth in claim 1. However, Tepper and Crawford do not disclose calculate a quality measure. Murthy discloses calculating a quality measure for images (col. 10). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tepper's apparatus for calculating a quality measure for the movement parameter taught by Crawford and Murthy because by calculating a quality measure for the movement parameter Tepper can obtain images with the most accurate position of invasive instrument and organ motion.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2003/0220570, US 2002/0035321 and US 2001/0031919.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HIEN NGUYEN whose telephone number is (571)270-7031. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jackson can be reached on (571)272-4697. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. N./
Examiner, Art Unit 4158
11/17/2008

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768